



Pl. 92

*A Thesis.*

*Upon the use of the Cold Bath previous to the Cold Stage  
of Intermittents & during the Hot Stage of Fevers*

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The subject of this Dissertation, is to prove that the Cold Bath may be employed with advantage previous to the cold Stage of Intermittents, as well as during the Hot Stage of Fevers. It is obvious to every one that during the former state, as there is every appearance of feble, & reduced action, that the secretions are either languid or suspended, that the vital functions are irregular & impaired, and that the faculties of the mind are deprived of their accustomed energy. How the cause operates to produce this effect I will not enquire into; satisfied that if discovered it would advance the Science but little in relieving disordered humanity: and that Nature operates by laws peculiar to herself, consulting the offence and constitutional differences of her productions in the quietest obscurity. To us it will be the humble task to trace & notice these changes, and tho we cannot solve these difficulties, we can at least obviate their effects.

This will consist in exciting the actions of the system previous to the paroxysm, and the Cold Bath is I think subservient to this purpose.

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whether suspends action or produces a diminution of it, effects such changes as disposes the system to take on a train of more vigorous & active operations. What this consists in has been supposed an increase of Irritability, which Haller supposed to reside in every muscular fibre, to be the principle on which stimulus acted, and which did exist in a greater or less degree, produced contractions vigorous or feeble.

Upon going into a Bath suppose 45° Fahrenheit the action of the capillary vessels is diminished or ceases for a time, & the blood vessels are reduced in their action. Hence the skin becomes pale, and contracted, and loses its heat. hence a torpor and listlessness ensues, and hence results a diminution of sensibility, which is materially influenced by the circulation. But in emerging from it, the vessels in consequence of the change undergone, and the temperature of the atmosphere, increase in their action. the skin becomes more florid. a glow is felt over the body. the spirits are more animated. the eyes more expressive &c. all indicating a new & more vigorous circulation. The same remark <sup>fact</sup> may be illustrated in various ways.

Thus by immersing both arms in water. one into a vessel containing

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If the temperature <sup>be</sup> brought to the other into another  
43° Fahrenheit, we will perceive a material difference when  
placed into water of a higher temperature than the body. In the one  
immersed in the cold water we find the action <sup>now</sup> increased  
something like an effluence to be diffused out of it and pain not  
unfrequently is a consequence. whereas in the other the effects are  
by no means equal in degree. Thus also the hands when benumbed  
benumbed with cold are excited by the application of heat to  
an <sup>action</sup> accompanied with a sense of distension, heat & every appa-  
rance of increased <sup>action</sup> greater than could be produced by  
heat simply without the previous exposure to cold. And from  
this results chilblains which is nothing more than local inflam-  
mation.

Thus also when a limb is exposed so as to be frozen, the most  
cautious application of heat is necessary, to restore it to its healthy  
temperature.

The preceding principles receive weight from the authority  
of Sydenham. When reaction is moderate he says the effects  
are salutary to the system. but when the degree of heat which  
succeeds to cold is great then we observe inflammatory complaints.

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to ensue. Thus warm weather succeeding a sudden frost produces  
pleurisy, quinses and other inflammatory complaints, whatever  
may be the general constitution of the year.

These effects may be extended further than is commonly imagi-  
ed. They are applicable to explain the phenomena of the vegeta-  
ble kingdom. Thus vegetation is more rapid in the spring than at  
any other season. thus the sap ascends more rapidly in the morn-  
ing than at noon, more so when a warm day succeeds a cold one.

These facts are incontrovertible in my opinion. and evidently point-  
out that by the agency of cold, (applied in the manner mentioned,)  
something is accumulated in the animal and vegetable systems by  
which they are disposed to be excited into greater activity upon  
stimuli being subsequently applied.

But it may happen that from the violence of the Remote cause  
of Intermittent Fevers or from the actions of the system being  
linked together by morbid association. that the reaction which  
issues from the bath, is not sufficiently powerful to dissolve them  
and an ague ensues. This does not invalidate the importance  
of the remedy, for it is not possible that one can be suited to  
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occasionally by the more sturdy actions of disease. It will however have its importance even in this state. It will under the operation of Stimulants necessary to its effect more certain & active as was accomplished in the following case which I witnessed under the care of a medical friend.

A patient who had been subject to attacks of Intermittent fever applied which the usual remedies did not succeed in relieving. ✓  
applied to my friend as stated. Finding his constitution not too much debilitated for the employment of the remedy it was administered before the expected paroxysm but was not equal to the expectations formed of it. Pursuing however the same steps previous to the next, it was now thought proper during the reaction of the system to employ some of those remedies which had failed before. ✓  
this preparatory measure had been employed. They were now found successful & the patient by suffering this practice to be continued two or three times has had no return.

Dr. Physick has politely favoured me with the history of a case very analogous to the one I have mentioned. which was communicated to him by the Patient. He had long been afflicted with Intermittent fever for which a variety of remedies ✓  
were employed without success. Supposing of a cure he was at

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length directed to plunge in very cold water before he expected the  
fit. He accordingly on a very cold day broke the ice which covered  
a very large vessel of water and bathed in it; he escaped that  
return and has not had another. The gentleman ascribes the cure  
entirely to the cold water.

I now proceed to the Second Part of my subject which  
is to point out the propriety of the Cold Bath during the Hot Stage  
of Fevers. That a peculiar state of the skin exists in Fever  
has been long known, & was noticed by Hoffman, Cullen, and others,  
who remarking its <sup>general</sup> existence have not failed to connect it with  
malign fevers. But here under the influence of fancy, as warm as  
warms, have they mistaken effects for causes, and have ascribed  
to this state of the skin, the development, continuance & solution  
of fever. That such a state does exist no one will deny but that it is  
only a symptom or attendant will be admitted by the best speculative  
Physicians of the present day. Divested thus of the dignity it was  
enjoyed in we will attach it as any other and instead of suffering  
our patient to languish under its inefficient operations we will  
consider it as susceptible of relief from the timely but judiciously

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It now appears to me that too little attention has been paid to the state of the surface during the hot stage, and that regarding it we will observe an agent which aggravates & protracts its violence. That the Cold Bath is calculated to remove this condition which consist in a distention of the cutaneous vessels, and which is a peculiarity in fever. that it is adapted to reduce the morbid heat which prevails - it is the design of the following remarks to prove. In this. My own inexperience prevents me from discriminating to what species of fever it is best adapted nor to suggest its modifications in the several varieties - but as a general rule Dr Currie states that it may with safety be employed when there is no chilliness present, when the heat is steadily above what is natural, and when there is no sensible perspiration. Under these restrictions he says that it may be employed at any period of fever, but its effects will be more salutary as it is employed ~~soon~~ early.

Let us institute an enquiry into the origin of the term Fever. When the first improvers of our science noticed the phenomena of diseases they were struck with the prodigious

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increase of heat in some. Hippocrates, who studied life & disease in the book of Nature, perceiving the increase of heat to be the most remarkable symptom, ascribed this for the cause and established his distinctions upon the different degrees of intensity of this heat. From its striking character & its pre-dominance it was natural to borrow from this the denomination & hence *Febri* or *Ferreo* to grow hot.

This being determined the problem was to discover the state of the system productive of this effect.

At one time it was ascribed to the increased respiration, and as animal heat is produced by the changes the air undergoes in the lungs by its new combinations this appeared plausible. But as it was observed that an animal when undergoing severe exercise breathed as rapidly without such an extraordinary increase being perceived, it was evident that this alone could not afford a satisfactory explanation.

The same suggestion with less propriety has been offered as regards the increased circulation & the same objection may with propriety be made.

If we attend to the phenomena of fever we will perceive that together.

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with an increased respiration the skin presents changes new & peculiar. That there is a considerable heat and dryness a sensation of a nature which cannot be misunderstood & as if it was parched and an absolutely impervious state of the pores. Connected with this there is present great restlessness apprehension about the praecordia anxiety, sighing, watching.

These symptoms are more or less connected with the surface as is proved by this circumstance that for their modulation or removal the most effectual method is to restore the function of secretion. Hence sweating appears the desideratum in this stage, and hence its propriety that it is the kind of solution nature employs to relieve the system from the oppression it labours under.

Let us see Dr Cullen's process in alleviating this state of the system. By the use of this application he says the heat lessens, diaphoresis was produced, the pulse modulated, the mind became calm and collected & refreshing sleep which before was prevented followed.

Hence it is by taking this function out of Nature's hands that is by promoting artificially we effect instantaneously

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what his operations would have produced eventually.

I have said that this state restrained perspiration. when it exists it is unaccountable to what a degree the heat of the body increases. but when in action it is the most powerful agent in regulating the temperature of the body. Thus it is that the husbandman feels himself invigorated and refreshed while pursuing his necessary occupations. Thus it is that the inhabitant of the torrid zone, feels himself protected from the influence of a meridian sun. and thus it is that the victim of fever perceives moments in which he may recruit the frame which had been tortured and oppressed. Recent experiments have evinced that an animal though exposed to heat elevated to the boiling point suffers no increase of its temperature provided that the secretion of Perspiration continues.

In fever the action of the arterial system is often such as to be incompatible with secretion, & here the bath may by reducing it, be admirably adapted. This may be exemplified by other diseased states. In inflammation the excitement is sometimes

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great as to restrain that effusion which nature employs as a species of resolution and which nothing so directly induces as coarctation vena recti. In the state above alluded to it is common to employ diaphoretics but not with sufficient discrimination.

The end is held in view but the nature of the means employed is not adverted to. All medicines are stimulants, differing not only in the degree but in the kind of excitation. If therefore we employ them we act upon the principle then do who administer cordials in inflammation.

We either carry the action so far that the sweat which breaks out is partial and not beneficial or we sink the powers of the system and then what comes is too late to be advantageous.

How much more consistent first to employ the bath which by its operation diminishes heat and action as blinding in inflammation and thus paves the way to recovery and health or what is important to rational and consistent practice in the physician. Nature would have effected the same eventually and would have been much the superior of the two, but my object

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The reaction which I have mentioned as occurring after the bath will take place but then it will be salutary & beneficial. The heat and stricture are now removed. perspiration the moderator of the animal temperature has ensued. this opens and the new action rather than exhausting tends to revive & invigorate the patient.

But unfortunately we have much to contend with before this can be employed as freely as necessary. Prejudice in medicine like quackery in science renders us alike bold and presumptuous.

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